

**Notice of Allowability**

Application No.

10/651,105

Examiner

James J. Leybourne

Applicant(s)

NAKASUJI ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment received 15 April, 2006.
2. ☒ The allowed claim(s) is/are 66-88.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's Remarks received 15 April 10, 2006 have been fully considered and are persuasive.

### *Allowable Subject Matter*

2. Claims 66-88 and 91-99 are allowed.
3. These claims were allowed in the last office action and the reasons are repeated herein.

The following is an examiner's statement of reasons for allowance:

Regarding independent claim 66, the prior art fails to disclose or make obvious an electron beam system comprising:

an electron gun for emitting an electron beam and for irradiating the electron beam against a sample;

an electron lens for magnifying the electron beam after having passed through the sample; and

a detector for detecting the electron beam after having been magnified so as to form an image of the sample, wherein a crossover image of said electron gun is to be formed on or in the vicinity of a principle plane of said electron lens.

Claims 67-88 and 91 are allowed by virtue of their dependency on claim 66.

Regarding independent claim 92, the prior art fails to disclose or make obvious an electron beam system comprising:

an electron gun for emitting a primary electron beam and irradiating the primary electron beam against a sample, when positioned at an irradiation location as a subject to be inspected, so as to form an electron image, by a transmission electron beam having passed through the sample, to be magnified and detected;

an NA aperture disposed in a path of the transmission electron beam; and

an electron lens in the vicinity of the irradiation location,

wherein a principle plane of said electron lens and said NA aperture are in a conjugate relationship with respect to each other.

Claims 93, 94, 96 and 100 are allowed by virtue of their dependency on claim 92.

Regarding independent claim 95, the prior art fails to disclose or make obvious an electron beam system, in which an electron image of secondary electrons emanated from a sample surface, back scattering electrons or an electron having passed through the sample is magnified by an at least two-stage electron lens and then detected, wherein a magnified image produced by a first stage of said electron lens is focused on a point upstream of the second stage of said electron lens to thereby reduce a distortion aberration or a magnification aberration.

Claim 98 is allowed by virtue of its dependency on claim 95.

Regarding independent claim 97, the prior art fails to disclose or make obvious an electron beam system that projects an image of a sample using electrons that pass

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through the sample onto a detector that forms a detected image and a distortion aberration in the detected image is simulated by calculation to thereby determine a difference between a third order of absolute value and a fifth order of absolute value of the distortion aberration, and a compensation parameter is optimized such that said difference is minimized or that the fifth order of absolute value is greater than the third order of absolute value by about 5 to 15 %.

Regarding independent claim 99, the prior art fails to disclose or make obvious an electron beam system comprising:

an electron gun for emitting an electron beam and for irradiating the electron beam against a sample when the sample is positioned at an irradiation location;

an electron lens disposed close to the irradiation location, said electron lens for magnifying, as a transmission electron image, electrons that have passed through the sample so as to be detectable by either one of a CCD, a TDI or an EBCCD; and

an aperture between said electron gun and said irradiation location, with an aperture image to be focused on or in the vicinity of a principle plane of said electron lens, wherein when a magnification for magnifying the electrons is to be changed, a distance between the irradiation location and said electron lens is changed.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance"

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to James J. Leybourne whose telephone number is (571) 272-2478. The examiner can normally be reached on M-F 9:00- 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 15, 2006

JJL

  
JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800